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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/448,679	11/24/1999	CHRISTOPHER J. LORD	INTL-0252-US	5314

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EXAMINER

TRAN, TRANG U

ART UNIT	PAPER NUMBER
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2614

DATE MAILED: 10/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/448,679

Applicant(s)

LORD ET AL.

Examiner

Trang U. Tran

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 9-12, 15-20, 22 and 25-30 is/are rejected.
- 7) ☒ Claim(s) 6-8, 13, 14, 21, 23 and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed July 09, 2002 have been fully considered but they are not persuasive.

In re page 3, applicants argue that Acharya does not disclose a method in which "replacing the first portion with a second portion of the video frame" occurs as recited by claim 1 because, as disclosed in Acharya, a technique averages neighboring pixels and the pixel under consideration to obtain an average of the pixels and then this average of the pixels that replaces the original pixel.

In response, the examiner respectfully disagrees. Acharya et al discloses in col. 1, lines 36-44 and in col. 5, lines 52-54 that "a median filter (applied in a particular direction(s) through the pixel to neighboring pixels) applied to sample values including and about the pixel P of {12, 13, 200, 50, 14} would first be ranked in order as {12, 13, 14, 118, 200}. The so-called uni-directional FIR median hybrid filter would replace the the original pixel location P that had a value of 200 with the median of the sample set which is 14. thus, the output vector, after the filter, would be: {12, 13, 14, 50, 14}. If the value 200 were in fact part of an edge rather than noise, the smoothing caused by applying the filter as shown in the output vector values would decimate the edge feature" and "The linear averaging technique replaces the pixel under consideration with a linear average of itself and neighboring pixels that have a similar intensity". From the above passages, it is clear that Acharya does disclose the claimed capability of "replacing the first portion with a second portion of the video frame".

In re page 4, applicants argue that, for similar reasons as discussed above as to claim 1, claim 9 is patentable over Acharya, as nowhere does Acharya disclose a system having a software program that "replaces the first portion of the video frames with a second portion of the video frame" as recited in claim 9.

In response, the examiner respectfully disagrees. As discussed in claim 1 above, Acharya et al discloses the claimed "replacing the first portion with a second portion of the video frame" and discloses in col. 13, lines 49-52 that the application used to perform noise removal on the CFA image may be an executable module compiled from source written in a language such as C++.

In re page 4, applicants argue that, as discussed above regarding claim 1, claim 16 and claims 17 through 24 depending therefrom are patentable over Acharya.

In response, the examiner respectfully disagrees. as discussed in claim 1 above, Acharya et al discloses all the features of claim 1.

In re page 4, applicants argue that new claims 25-30 are also patentable over the cited art, as nowhere does the art show "replacing the first portion of the video frame with one of the second portion, the first adjacent portion or the second adjacent portion if a comparison between the first result and the second result is indicative of noise"

In response, the examiner respectfully disagrees. As discussed in claim 1 above, Acharya discloses the claimed "replacing the first portion of the video frame with one of the second portion, the first adjacent portion or the second adjacent portion if a comparison between the first result and the second result is indicative of noise".

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1-5, 9-12, 15-20, 22 and 25-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Acharya et al (US 6,229,578 B1).

In consider claim 1, Acharya et al. discloses all the claimed subject matter, note 1) the claimed receiving a video frame is met by the localization region within the capture image (Fig. 1, col. 4, lines 29-42) or the 6X6 pixel region of a captured image (Fig. 8, lines 49-65); 2) the claimed identifying noise in a first portion of the video frame is met by the method of edge detection for determine an “edge” pixel or a non-edge pixel (Fig. 1, col. 5, lines 11-67); and 3) the claimed replacing the first portion with a second portion of the video frame is met by the linear averaging technique replaces the pixel under consideration with a linear average of itself and neighboring pixels that have a similar intensity (Fig. 6, col. 11, line 29 to col. 13, line 3).

In consider claim 2, the claimed wherein identifying further comprises: associating a noise level with the first portion of the video frame the gradient (or normalized gradient) value associated with each and every pixel in the localization region by applying some mask or operator (Fig. 1, col. 4, line 43 to col. 5, line 11); and comparing the noise level to a predetermined value is met by step 140 of Fig. 1 (col. 5, lines 12-44).

In consider claim 3, the claimed wherein associating further comprises distinguishing the first portion from the second portion is met by col. 11, lines 35-41.

In consider claim 4, Acharya et al discloses all the claimed subject matter, note 1) the claimed wherein distinguishing further comprises: associating a first value with the first portion is met by the intensity values of the pixel which considered for noise removal $x(i, j)$ (Fig. 6, col. 11, lines 32-52); 2) the claimed associating a second value with the second portion is met by the AVD (absolute value difference) of each adjacent pixel (Fig. 6, line 53 to col. 12, line 5); and performing a plurality of arithmetic operations between the first value and the second value is met by col. 11, line 53 to col. 13, line 3.

In consider claim 5, the claimed wherein associating a first value with the first portion further comprises: identifying a plurality of values associated with the first portion; and performing an arithmetic operation on the plurality of values to render the first value is met by the AVD (absolute value difference) of each adjacent pixel (Fig. 6, col. 11, line 53 to col. 13, line 3).

In consider claim 9, Acharya et al. discloses all the claimed subject matter, note 1) the claimed a bus is met by the system bus 713 (Fig. 7); 2) the claimed a processor

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coupled to the bus is met by the processor 712 (Fig. 7, col. 13, lines 45-67); 3) the claimed a device coupled to the bus to receive a video signal is met by the camera 730 (Fig. 7, col. 13, lines 17-44); and 4) the claimed a storage medium coupled to the bus including a software program that, upon execution: detects noise in a first portion of a video frame of the video signal; and replaces a first portion of the video frame is met by the memory 711, such as RAM, which is used to store/load instruction, addresses and result data (Fig. 7, col. 13, line 45 to col. 14, line 60).

In consider claim 10, the claimed wherein the video frame is stored in a memory and, upon execution, the software program writes to the memory to replace the first portion of the video frame is met by the memory 711, such as RAM, which is used to store/load instruction, addresses and result data (Fig. 7, col. 13, line 45 to col. 14, line 60).

Claim 11 is rejected for the same reason as discussed in claim 2.

In consider claim 12, the claimed wherein the predetermined value is stored in the memory is met by the memory 711, such as RAM, which is used to store/load instruction, addresses and result data (Fig. 7, col. 13, line 45 to col. 14, line 60).

In consider claim 15, the claimed wherein the storage medium is a hard disk drive is met by the hard disk drive 718 (Fig. 7).

Claim 16 is rejected for the same reason as discussed in claim 1.

In consider claim 17, the claimed further storing instructions that cause the processor-based system to locate the video frame by reading a memory device is met

by the memory 711, such as RAM, which is used to store/load instruction, addresses and result data (Fig. 7, col. 13, line 45 to col. 14, line 60).

Claim 18 is rejected for the same reason as discussed in claim 2.

Claims 19-20 are rejected for the same reason as discussed in claims 4-5, respectively.

In consider claim 22, the claimed wherein the medium storing instructions is a memory device is met by the memory 711, such as RAM, which is used to store/load instruction, addresses and result data (Fig. 7, col. 13, line 45 to col. 14; line 60).

In consider claim 25, Acharya et al discloses all the limitations, noted that 1) receiving a video frame is met by capturing image signal by a sensor or camera or other imaging device disclosed in col. 3, lines 50-60; 2) analyzing a first portion of the video frame with a first adjacent portion of the video frame to obtain a first result is met by determining the gradient value associated with each and every pixel in the localization region by applying some mask or operator disclosed in col. 4, lines 43-65; 3) analyzing a second portion of the video frame with a second adjacent portion of the video frame to obtain a second result is met by the determining the gradient value associated with each and every pixel in the localization region by applying some mask or operator disclosed in col. 4, lines 43-65; and 4) replacing the first portion of the video frame with one of the second portion, the first adjacent portion or the second adjacent portion if a comparison between the first result and the second result is indicative of noise is met by replacing the linear averaging technique replaces the pixel under consideration with a

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linear average of itself and neighboring pixels that have a similar indensity disclosed in col. 1, lines 33-47 and col. 5, lines 52-54.

In consider claim 26, the claimed wherein each of the first and second portions and the first and second adjacent portions comprises a plurality of units, and wherein the analyzing is performed on a unit by unit basis is met by determining the gradient value associated with each and every pixel in the localization region by applying some mask or operator disclosed in col. 4, lines 43-65.

In consider claim 27, the claimed calculating a first threshold based upon an amount of the plurality of units per the respective portion is met by the selecting the threshold value disclosed from col. 4, line 66 to col. 5, line 10.

In consider claim 28, the claimed wherein the first and second results comprises a sum of absolute differences between the first portion and the first adjacent portion and the second portion and the second adjacent portion, respectively is met by the determining the gradient for a pixel disclosed from col. 6, line 10 to col. 7, line 38.

In consider claim 29, the claimed wherein the comparison is indicative of noise if a difference between the first result and the second result exceeds the first threshold is met by replacing the linear averaging technique replaces the pixel under consideration with a linear average of itself and neighboring pixels that have a similar in density disclosed in col. 1, lines 33-47 and col. 5, lines 52-54.

In consider claim 30, the claimed wherein the first portion comprises an edge portion of the video frame is met by the determining the "edge" pixel disclosed in col. 5, lines 12-43.

Allowable Subject Matter

4. Claims 6-8, 13-14, 21 and 23-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Trang U. Tran** whose telephone number is **(703) 305-0090**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **John W. Miller**, can be reached at **(703) 305-4795**.

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Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

TT Tt
October 19, 2002



JOHN MILLER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600